

LOT 112

SITE NAME: MINNISALE HOMES CORP
BUILDER: GREENPARK HOMES

TYPE: HEMLOCK 5

GFA: 2061

DATE: Aug-18
LO# 78575

WINTER NATURAL AIR CHANGE RATE 0.367
SUMMER NATURAL AIR CHANGE RATE 0.115

HEAT LOSS AT °F. 74
HEAT GAIN AT °F. 11

CSA-F280-12
SB-12 PACKAGE A1

ROOM USE	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH						
EXP. WALL	13	25	0	13	35	13	0						
CLG. HT.	9	9	9	9	9	9	9						
FACTORS													
GRS. WALL AREA	117	225	0	117	315	117	0						
GLAZING	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN						
NORTH	20.8 15.1	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0						
EAST	20.8 40.0	0 0 0	0 0 0	0 0 0	48 997 1918	16 332 638	0 0 0						
SOUTH	20.8 23.8	0 0 0	7 145 167	0 0 0	0 0 0	16 332 381	16 332 381						
WEST	20.8 40.0	32 665 1279	14 291 559	0 0 0	0 0 0	0 0 0	0 0 0						
SKYLT.	36.4 100.7	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0						
DOORS	24.7 3.7	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0						
NET EXPOSED WALL	4.4 0.6	85 370 55	204 889 132	0 0 0	69 301 45	283 1233 183	101 440 85						
NET EXPOSED BMT WALL ABOVE GR	3.5 0.5	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0						
EXPOSED CLG	1.3 0.6	234 293 130	190 238 106	65 81 36	120 150 67	286 358 158	156 195 87						
NO ATTIC EXPOSED CLG	2.7 1.2	0 0 0	0 0 0	0 0 0	62 166 74	0 0 0	0 0 0						
EXPOSED FLOOR	2.5 0.4	0 0 0	0 0 0	0 0 0	182 453 87	36 90 13	0 0 0						
BASEMENT/CRAWL HEAT LOSS		0	0	0	0	0	0						
SLAB ON GRADE HEAT LOSS		0	0	0	0	0	0						
SUBTOTAL HT LOSS		1328	1563	81	2068	2346	968						
SUB TOTAL HT GAIN		1464	964	36	2171	1375	533						
LEVEL FACTOR / MULTIPLIER	0.20 0.31	0.20 0.31	0.20 0.31	0.20 0.31	0.20 0.31	0.20 0.31	0.20 0.31						
AIR CHANGE HEAT LOSS		418	492	26	651	738	305						
AIR CHANGE HEAT GAIN		100	66	2	149	94	36						
DUCT LOSS		0	0	0	272	308	0						
DUCT GAIN		0	0	0	304	219	0						
HEAT GAIN PEOPLE	240	2	480	0	1	240	1						
HEAT GAIN APPLIANCES/LIGHTS		478	0	0	478	478	478						
TOTAL HT LOSS BTU/H		1747	2055	107	2991	3393	1273						
TOTAL HT GAIN x 1.3 BTU/H		3278	1339	50	4343	3128	1673						

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. HANNA
JAN 22 2019
ATTACHED NOTES ARE PART
OF REVIEWED DRAWINGS
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ROOM USE	LIV	KIT	WIR	FOY	MUD	WOD	BAS
EXP. WALL	12	38	5	50	16	28	119
CLG. HT.	10	10	10	11	10	9	9
FACTORS							
GRS. WALL AREA	120	380	50	550	160	252	882
GLAZING	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN	LOSS GAIN
NORTH	20.8 15.1	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
EAST	20.8 40.0	0 0 0	0 0 0	6 125 240	0 0 0	0 0 0	0 0 0
SOUTH	20.8 23.8	0 0 0	8 166 190	0 0 0	0 0 0	0 0 0	3 62 71
WEST	20.8 40.0	35 727 1399	0 0 0	0 0 0	0 0 0	6 125 240	0 0 0
SKYLT.	36.4 100.7	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
DOORS	24.7 3.7	0 0 0	0 0 0	40 986 146	20 493 73	0 0 0	20 493 73
NET EXPOSED WALL	4.4 0.6	85 370 55	308 1342 199	42 183 27	504 2196 326	140 610 90	0 0 0
NET EXPOSED BMT WALL ABOVE GR	3.5 0.5	0 0 0	0 0 0	0 0 0	0 0 0	162 569 84	189 664 98
EXPOSED CLG	1.3 0.6	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
NO ATTIC EXPOSED CLG	2.7 1.2	0 0 0	39 105 47	0 0 0	20 54 24	0 0 0	0 0 0
EXPOSED FLOOR	2.5 0.4	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
BASEMENT/CRAWL HEAT LOSS		0	0	0	0	0	4035
SLAB ON GRADE HEAT LOSS		0	0	0	0	0	
SUBTOTAL HT LOSS		1096	2942	349	1183	894	5255
SUB TOTAL HT GAIN		1454	2929	217	735	324	243
LEVEL FACTOR / MULTIPLIER	0.30 0.46	0.30 0.46	0.30 0.46	0.30 0.46	0.30 0.46	0.30 0.46	0.30 0.46
AIR CHANGE HEAT LOSS		507	1360	161	1553	510	6820
AIR CHANGE HEAT GAIN		100	201	15	50	11	39
DUCT LOSS		0	0	0	0	0	0
DUCT GAIN		0	0	0	0	0	0
HEAT GAIN PEOPLE	240	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS		478	478	0	478	0	478
TOTAL HT LOSS BTU/H		1605	4303	511	4914	894	12075
TOTAL HT GAIN x 1.3 BTU/H		2640	4689	302	1021	421	987

TOTAL HEAT GAIN BTU/H: 25991

TONS: 2.09

LOSS DUE TO VENTILATION LOAD BTU/H: 1593

STRUCTURAL HEAT LOSS: 37725

TOTAL COMBINED HEAT LOSS BTU/H: 39318

Michael O'Rourke

SITE NAME: MINNISSALE HOMES CORP
BUILDER: GREENPARK HOMES

TYPE: HEMLOCK 5

DATE: Aug-18

GFA: 2061 LO# 79575

HEATING CFM 1131 COOLING CFM 1131
TOTAL HEAT LOSS 37,725 TOTAL HEAT GAIN 24,855
AIR FLOW RATE CFM 29.98 AIR FLOW RATE CFM 45.5

furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure for s/a & r/a 0.35

#GOODMAN
GMCC960603BNA 60
FAN SPEED LOW
MEDLOW
MEDIUM
MEDIUM HIGH
HIGH 1131

AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 57,600
DESIGN CFM = 1131
CFM @ 0.5" E.S.P.

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	10	8	4
R/A	0	0	4	1	1

All S/A diffusers 4"x10" unless noted otherwise on layout.
All S/A runs 5"Ø unless noted otherwise on layout.

plenium pressure s/a 0.18 r/a pressure 0.17
max s/a dif press. loss 0.03 r/a grille press. Loss 0.02
min adjusted pressure s/a 0.15 adjusted pressure r/a 0.15

RUN #	1	2	3	4	5	6	7	8	9	10	12	13	14	15	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	BED-2	BED-3	MBR	LIV	LIV	KIT	KIT	FOY	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	0.87	2.06	0.11	1.50	1.70	1.27	0.45	1.50	1.70	0.87	0.80	0.80	2.15	2.15	2.46	0.51	2.46	1.61	3.19	3.19	3.19	3.19
CFM PER RUN HEAT	26	62	3	45	51	38	13	45	51	26	24	24	64	64	74	15	74	48	96	96	96	96
RM GAIN MBH	1.64	1.34	0.05	2.17	1.56	1.67	0.14	2.17	1.56	1.64	1.32	1.32	2.34	2.34	0.51	0.30	0.51	0.85	0.35	0.35	0.35	0.35
CFM PER RUN COOLING	75	61	2	99	71	76	6	99	71	75	60	60	107	107	23	14	23	39	16	16	16	16
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.15	0.15	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	40	50	33	51	51	36	37	57	54	42	42	47	40	29	32	20	47	17	37	25	10	32
EQUIVALENT LENGTH	150	200	160	180	170	160	150	210	180	190	170	190	170	140	150	160	160	140	190	160	160	190
TOTAL EFFECTIVE LENGTH	190	250	193	231	221	196	187	267	234	232	212	237	210	169	182	180	207	157	227	185	170	222
ADJUSTED PRESSURE	0.09	0.07	0.09	0.07	0.08	0.09	0.09	0.06	0.07	0.07	0.08	0.07	0.07	0.09	0.09	0.1	0.08	0.11	0.07	0.09	0.1	0.07
ROUND DUCT SIZE	5	5	4	6	5	5	4	6	5	5	5	5	6	6	5	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	191	455	34	229	374	279	149	229	374	191	176	176	326	326	543	172	543	551	489	489	489	489
COOLING VELOCITY (ft/min)	551	448	23	505	521	558	69	505	521	551	441	441	546	546	169	161	169	447	82	82	82	82
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	C	C	B	A	A	D	B	A	A	C	C	C	C	C	A	D	A	B	C	D	D	A

RUN #	1	2	3	4	5	6	7	8	9	10	12	13	14	15	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	BED-2	BED-3	MBR	LIV	LIV	KIT	KIT	FOY	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	0.87	2.06	0.11	1.50	1.70	1.27	0.45	1.50	1.70	0.87	0.80	0.80	2.15	2.15	2.46	0.51	2.46	1.61	3.19	3.19	3.19	3.19
CFM PER RUN HEAT	26	62	3	45	51	38	13	45	51	26	24	24	64	64	74	15	74	48	96	96	96	96
RM GAIN MBH	1.64	1.34	0.05	2.17	1.56	1.67	0.14	2.17	1.56	1.64	1.32	1.32	2.34	2.34	0.51	0.30	0.51	0.85	0.35	0.35	0.35	0.35
CFM PER RUN COOLING	75	61	2	99	71	76	6	99	71	75	60	60	107	107	23	14	23	39	16	16	16	16
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.15	0.15	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	40	50	33	51	51	36	37	57	54	42	42	47	40	29	32	20	47	17	37	25	10	32
EQUIVALENT LENGTH	150	200	160	180	170	160	150	210	180	190	170	190	170	140	150	160	160	140	190	160	160	190
TOTAL EFFECTIVE LENGTH	190	250	193	231	221	196	187	267	234	232	212	237	210	169	182	180	207	157	227	185	170	222
ADJUSTED PRESSURE	0.09	0.07	0.09	0.07	0.08	0.09	0.09	0.06	0.07	0.07	0.08	0.07	0.07	0.09	0.09	0.1	0.08	0.11	0.07	0.09	0.1	0.07
ROUND DUCT SIZE	5	5	4	6	5	5	4	6	5	5	5	5	6	6	5	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	191	455	34	229	374	279	149	229	374	191	176	176	326	326	543	172	543	551	489	489	489	489
COOLING VELOCITY (ft/min)	551	448	23	505	521	558	69	505	521	551	441	441	546	546	169	161	169	447	82	82	82	82
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	C	C	B	A	A	D	B	A	A	C	C	C	C	C	A	D	A	B	C	D	D	A

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SUPPLY AIR TRUNK SIZE												RETURN AIR TRUNK SIZE											
TRUNK	STATIC	ROUND	RECT	VELOCITY				TRUNK	STATIC	ROUND	RECT	TRUNK	STATIC	ROUND	RECT	VELOCITY				TRUNK	STATIC	ROUND	RECT
CFM	PRESS.	DUCT	DUCT	CFM	PRESS.	DUCT	DUCT	CFM	PRESS.	DUCT	DUCT	CFM	PRESS.	DUCT	DUCT	CFM	PRESS.	DUCT	DUCT	CFM	PRESS.	DUCT	DUCT
TRUNK A	436	0.06	11	14	x	8	561	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.06	0	0	x	8	0
TRUNK B	500	0.06	11.6	16	x	8	563	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.06	0	0	x	8	0
TRUNK C	386	0.07	10.2	14	x	8	496	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.06	0	0	x	8	0
TRUNK D	631	0.07	12.2	18	x	8	631	TRUNK J	0	0.00	0	0	x	8	0	TRUNK R	0	0.06	0	0	x	8	0
TRUNK E	1131	0.06	15.8	28	x	8	727	TRUNK K	0	0.00	0	0	x	8	0	TRUNK S	0	0.06	0	0	x	8	0
TRUNK F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	x	8	0	TRUNK T	0	0.06	0	0	x	8	0
																TRUNK U	0	0.06	0	0	x	8	0
																TRUNK V	0	0.06	0	0	x	8	0
																TRUNK W	0	0.06	0	0	x	8	0
																TRUNK X	1131	0.06	15.8	30	x	8	679
																TRUNK Y	735	0.06	13.4	20	x	8	662
																TRUNK Z	0	0.06	0	0	x	8	0
																DROP	1131	0.06	15.8	24	x	10	679

TYPE: HEMLOCK 5
SITE NAME: MINNISSALE HOMES CORP

LO # 79575

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES		9.32.3.1(1)
a) ☒	Direct vent (sealed combustion) only	
b) ☐	Positive venting induced draft (except fireplaces)	
c) ☐	Natural draft, B-vent or induced draft gas fireplace	
d) ☐	Solid Fuel (including fireplaces)	
e) ☐	No Combustion Appliances	

HEATING SYSTEM	
☒ Forced Air	☐ Non Forced Air
☐ Electric Space Heat	

HOUSE TYPE		9.32.1(2)
☒	I Type a) or b) appliance only, no solid fuel	
☐	II Type I except with solid fuel (including fireplaces)	
☐	III Any Type c) appliance	
☐	IV Type I, or II with electric space heat	
☐	Other: Type I, II or IV no forced air	

SYSTEM DESIGN OPTIONS		O.N.H.W.P.
☐	1 Exhaust only/Forced Air System	
☐	2 HRV with Ducting/Forced Air System	
☒	3 HRV Simplified/connected to forced air system	
☐	4 HRV with Ducting/non forced air system	
☐	Part 6 Design	

TOTAL VENTILATION CAPACITY		9.32.3.3(1)
Basement + Master Bedroom	2 @ 21.2 cfm	42.4 cfm
Other Bedrooms	3 @ 10.6 cfm	31.8 cfm
Kitchen & Bathrooms	4 @ 10.6 cfm	42.4 cfm
Other Rooms	5 @ 10.6 cfm	53.0 cfm
Table 9.32.3.A. TOTAL		169.6 cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED		9.32.3.4(1)
1 Bedroom	31.8	cfm
2 Bedroom	47.7	cfm
3 Bedroom	63.6	cfm
4 Bedroom	79.5	cfm
5 Bedroom	95.4	cfm
TOTAL		79.5 cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	169.6	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	90.1	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 65H	Location: BSMT
79.5 cfm	3.0 sones
☒ HVI Approved	

PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
79.5 CFM	74 F	1.08	0.25

SUPPLEMENTAL FANS		PANASONIC
Location	Model	cfm
ENS	FV-05-11VK1	50
BATH	FV-05-11VK1	50
W/R	FV-05-11VK1	50

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE 65H		
155 cfm high	64 cfm low	
75 % Sensible Efficiency @ 32 deg F (0 deg C)	☒ HVI Approved	

LOCATION OF INSTALLATION	
Lot:	Concession
Township	Plan:
Address	
Roll #	Building Permit #

BUILDER: GREENPARK HOMES	
Name:	
Address:	
City:	
Telephone #:	Fax #:

INSTALLING CONTRACTOR	
Name:	
Address:	
City:	
Telephone #:	Fax #:

DESIGNER CERTIFICATION	
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.	
Name:	HVAC Designs Ltd.
Signature:	<i>Michael O'Rourke</i>
HRAJ #	001820
Date:	August-18

CSA F280-12 Residential Heat Loss and Heat Gain Calculations
Formula Sheet (For Air Leakage / Ventilation Calculation)

LO#: 79575

Model: HEMLOCK 5

Builder: GREENPARK HOMES

Date: 8/10/2018

Volume Calculation
House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	947	9	8523
First	947	10	9470
Second	1114	9	10026
Third	0	9	0
Fourth	0	9	0
Total:			28,019.0 ft³
Total:			793.4 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.367
SUMMER NATURAL AIR CHANGE RATE	0.115

Design Temperature Difference

	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-19	41	74
Summer DTDc	24	30	6	11

5.2.3.1 Heat Loss due to Air Leakage

$$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$$

0.367 x 220.39 x 41 °C x 1.2 = 3998 W

= 13640 Btu/h

6.2.6 Sensible Gain due to Air Leakage

$$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$$

0.115 x 220.39 x 6 °C x 1.2 = 186 W

= 633 Btu/h

5.2.3.2 Heat Loss due to Mechanical Ventilation

$$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

80 CFM x 74 °F x 1.08 x 0.25 = 1593 Btu/h

6.2.7 Sensible heat Gain due to Ventilation

$$HL_{vaib} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

80 CFM x 11 °F x 1.08 x 0.25 = 236 Btu/h

5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)

$$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) + (HL_{agcleve} + HL_{bgcleve})\}$$

Level	Level Factor (LF)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)
1	0.5	13,640	5,949	1.146
2	0.3		8,853	0.462
3	0.2		8,663	0.315
4	0		0	0.000
5	0		0	0.000

*HLairbv = Air leakage heat loss + ventilation heat loss

*For a balanced or supply only ventilation system HLairve = 0

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: HEMLOCK 5

BUILDER: GREENPARK HOMES

SFQT: 2061

LO# 79575

SITE: MINNISSALE HOMES CORP

DESIGN ASSUMPTIONS

HEATING	*F	COOLING	*F
OUTDOOR DESIGN TEMP.	-2	OUTDOOR DESIGN TEMP.	86
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75

BUILDING DATA

ATTACHMENT:	ATTACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	28019.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 49.0 ft	WIDTH: 26.0 ft	EXPOSED PERIMETER:	119.0 ft

2012 OBC - COMPLIANCE PACKAGE

Component

Ceiling with Attic Space Minimum RSI (R)-Value
Ceiling Without Attic Space Minimum RSI (R)-Value
Exposed Floor Minimum RSI (R)-Value
Walls Above Grade Minimum RSI (R)-Value
Basement Walls Minimum RSI (R)-Value
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value
Windows and Sliding Glass Doors Maximum U-Value
Skylights Maximum U-Value
Space Heating Equipment Minimum AFUE
HRV Minimum Efficiency
Domestic Hot Water Heater Minimum EF



Compliance Package A1

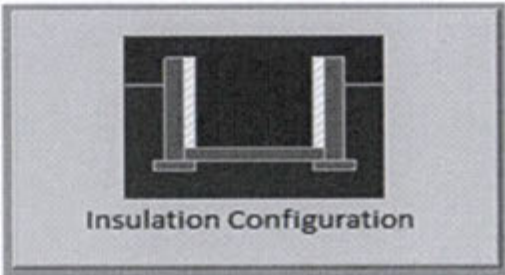
Nominal	Min. Eff.
60	59.22
31	27.65
31	29.80
22	17.03
20 ci	21.12
-	-
10	10
10	11.13
0.28	-
0.49	-
0.96	-
75%	-
0.8	-

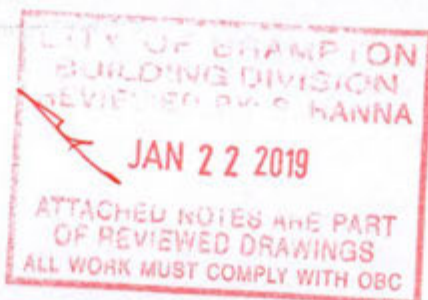
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Brampton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	14.9	 Insulation Configuration
Floor Width (m):	7.9	
Exposed Perimeter (m):	36.3	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	0.8	
Door Area (m ²):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):	1182	

TYPE: HEMLOCK 5
LO# 79575

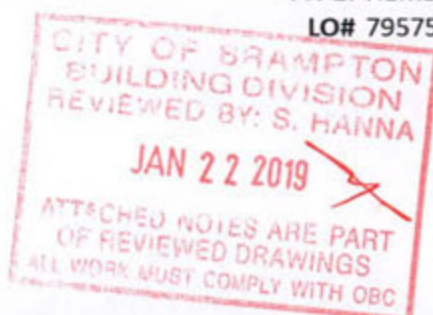
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description			
Province:	Ontario		
Region:	Brampton		
Weather Station Location:	Open flat terrain, grass		
Anemometer height (m):	10		
Local Shielding			
Building Site:	Suburban, forest		
Walls:	Heavy		
Flue:	Heavy		
Highest Ceiling Height (m):	7.62		
Building Configuration			
Type:	Semi		
Number of Stories:	Two		
Foundation:	Full		
House Volume (m ³):	793.4		
Air Leakage/Ventilation			
Air Tightness Type:	Present (1961-) (3.57 ACH)		
Custom BDT Data:	ELA @ 10 Pa.	1057.6 cm ²	
	3.57	ACH @ 50 Pa	
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust	
	37.5	37.5	
Flue Size			
Flue #:	#1	#2	#3
Diameter (mm):	0	0	0
Natural Infiltration Rates			
Heating Air Leakage Rate (ACH/H):	0.367		
Cooling Air Leakage Rate (ACH/H):	0.115		

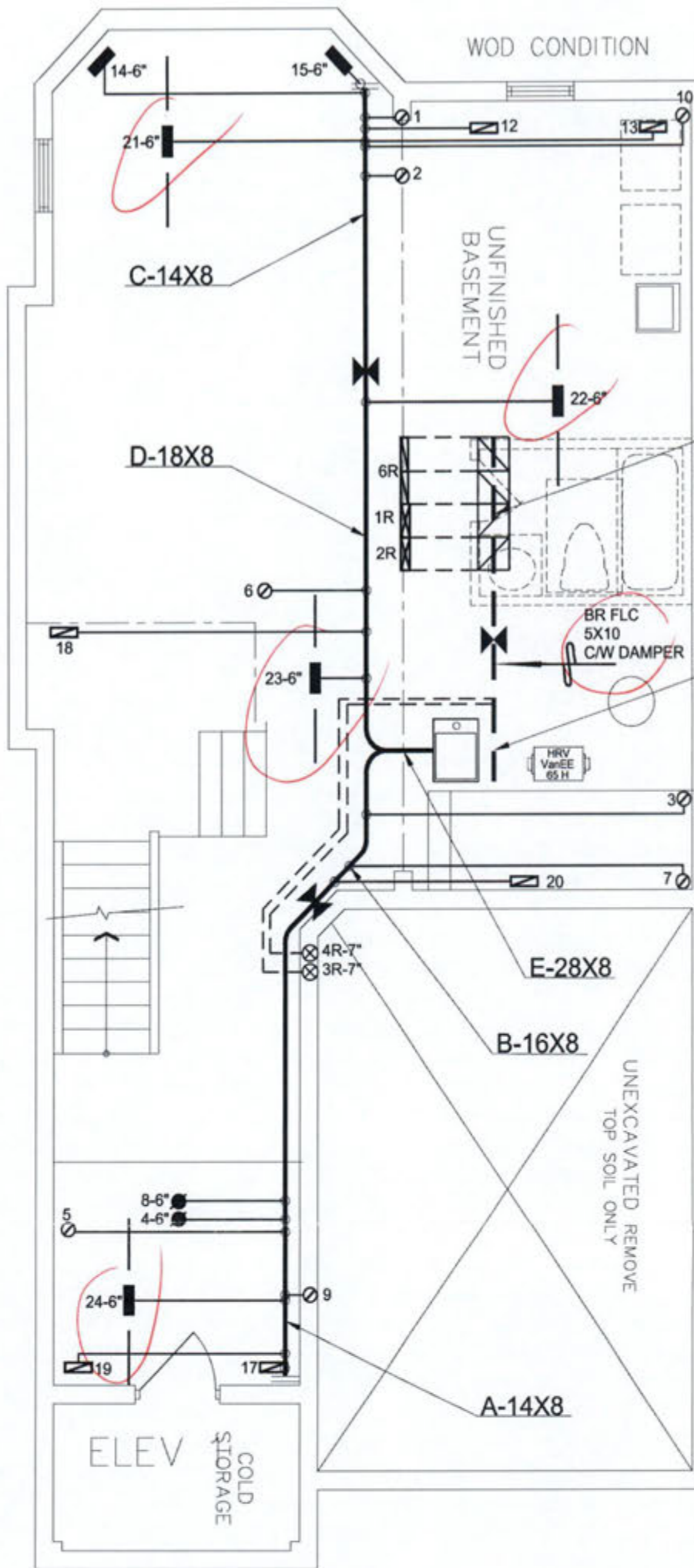
TYPE: HEMLOCK 5

LO# 79575



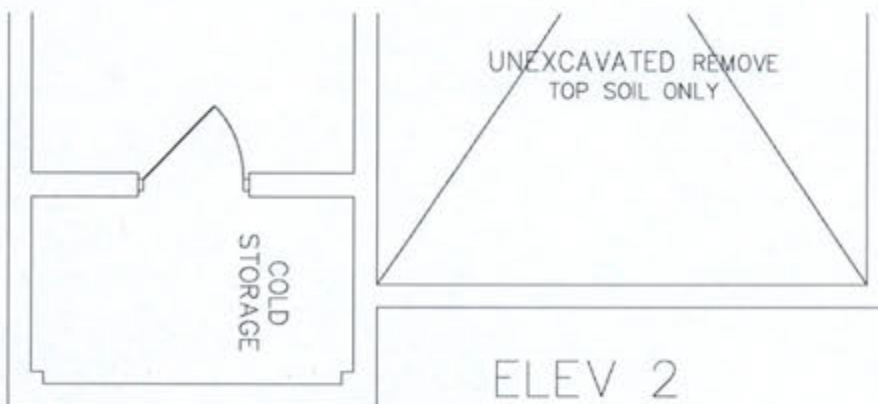
ENSURE THAT MIN THERMAL PERFORMANCE OF BLDG ENVELOPE AND EQUIPMENT SHALL CONFORM TO OBC SB-12.3.1.2 TABLE REQUIREMENTS. FURNACE SHALL BE EQUIPPED WITH BRUSHLESS DIRECT CURRENT MOTOR OBC DIV B 12.3.1.5. SEAL ALL DUCTWORK WITHIN UNCONDITIONED SPACE or OUTDOORS PER OBC DIV B6.2.4.3(1) REQUIREMENTS. SEAL ALL SUPPLY DUCTS LOCATED IN CONDITIONED SPACE IN COMPLIANCE WITH OBC DIV B6.2.4.3(12) REQUIREMENTS. SEPARATE ANY INTAKES FROM BUILDING ENVELOPE PENETRATIONS THAT ARE POTENTIAL SOURCES OF CONTAMINANTS (GAS VENTS, OIL FILL PIPES, etc. BY MIN 900mm (2FT 11IN) - OBC Div B 9.32.3.12. INSTALLATION OF KITCHEN EXHAUST DUCT LARGER THAN 6" dia SHALL BE PRECEDED BY APPLICATION FOR REVISION OF DESIGN PER OBC PART 6 REQUIREMENTS. EXHAUST FAN SHALL DISCHARGE DIRECTLY TO OUTSIDE. CLOTHES DRYER EXHAUST SYSTEM SHALL COMPLY WITH OBC DIV B 9.32.1.2, 9.32.1.3 & 9.32.3 REQS. BALANCE THE RETURN AIRFLOW ON THE UPPER FLOOR TO MATCH THE SUPPLY. WHEN HRV IS USED AS PRINCIPAL EXHAUST FAN, THE CONTROLLER SHALL BE WIRED TO THE HRV UNIT AND INTERCONNECTED TO THE FURNACE FAN. THE FURNACE BLOWER MUST BE IN OPERATION WHEN THE HRV IS IN OPERATION. INSTALL ADDITIONAL S/A REGISTER AS REQUIRED IN ORDER TO ENSURE MIN 72degF UNDERCUT BY MIN 1" - OBC Div B 9.33.3.1(1). THE DOOR TO ANY ROOM WITHOUT RETURN AIR GRILLE. ENSURE RETURN AIR INTAKE SHALL BE CONNECTED TO THE MAIN R/A DUCT AT A HORIZONTAL DISTANCE OF MIN 6FT FROM THE CASING OF THE UNIT (HRAI DIGEST).

INSTALLATION OF _____ SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS AND MANUALS



MECHANICAL VENTILATION SHALL BE PROVIDED IN CONFORMANCE WITH OBC DIV. B, 9.32.3 REQUIREMENTS.

INSTALLATION OF CARBON MONOXIDE DETECTOR(S) SHALL COMPLY WITH OBC DIV. B, 9.33.3.1(1) REQUIREMENTS.



ATTACHED NOTES ARE PART OF REVIEWED DRAWINGS
JAN 22 2019
REVIEWED BY: S. HANNA
BUILDING DIVISION
CITY OF BRAMPTON
ALL WORK MUST COMPLY WITH OBC

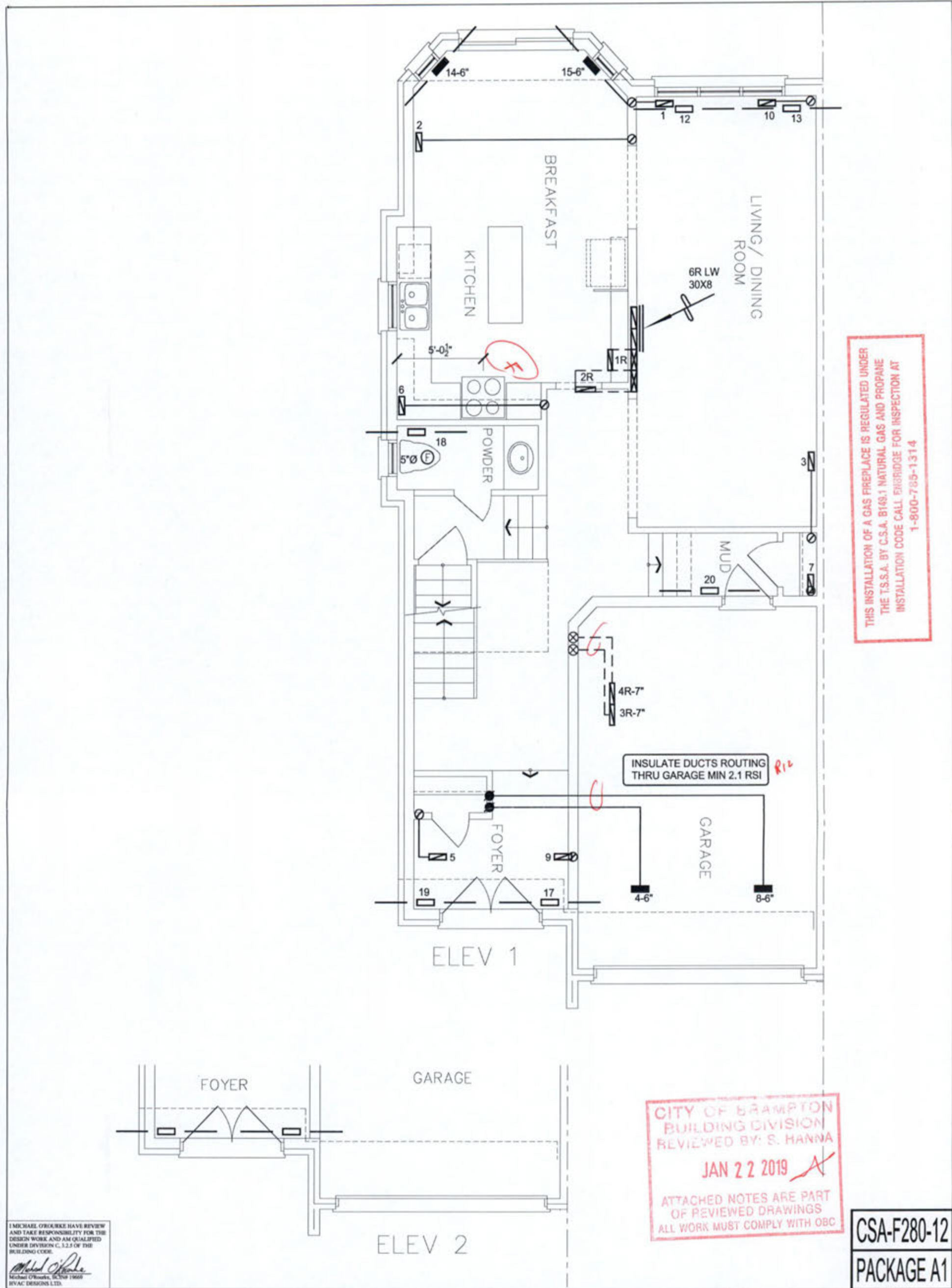
CSA-F280-12
PACKAGE A1

I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.
Michael O'Rourke, BCIN 19669
HVAC DESIGNS LTD.

HVAC LEGEND						3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER
						No.	Description
						Date	

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Client GREENPARK HOMES		HVACDESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services	HEAT LOSS 39318 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS			Sheet Title BASEMENT HEATING LAYOUT		
Project Name MINNISALE HOMES CORP BRAMPTON, ONTARIO			MAKE GOODMAN		3RD FLOOR					
LOT 11 L		Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.	MODEL GMEC960603BNA		2ND FLOOR			10	4	2
			INPUT 60 MBTUH		1ST FLOOR			8	1	2
HEMLOCK 5		2061 sqft	OUTPUT 57.6 MBTUH		BASEMENT			4	1	0
			COOLING 2.0 TONS		ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A			Date AUG/2018		
			FAN SPEED 1131 cfm @ 0.6" w.c.					Scale 3/16" = 1'-0"		
								BCIN# 19669		
								LO#		79575



THIS INSTALLATION OF A GAS FIREPLACE IS REGULATED UNDER THE T.S.S.A. BY C.S.A. B149.1 NATURAL GAS AND PROPANE INSTALLATION CODE CALL ENBRIDGE FOR INSPECTION AT 1-800-785-1314

CITY OF BRAMPTON
BUILDING DIVISION
REVIEWED BY: S. HANNA
JAN 22 2019
ATTACHED NOTES ARE PART
OF REVIEWED DRAWINGS
ALL WORK MUST COMPLY WITH OBC

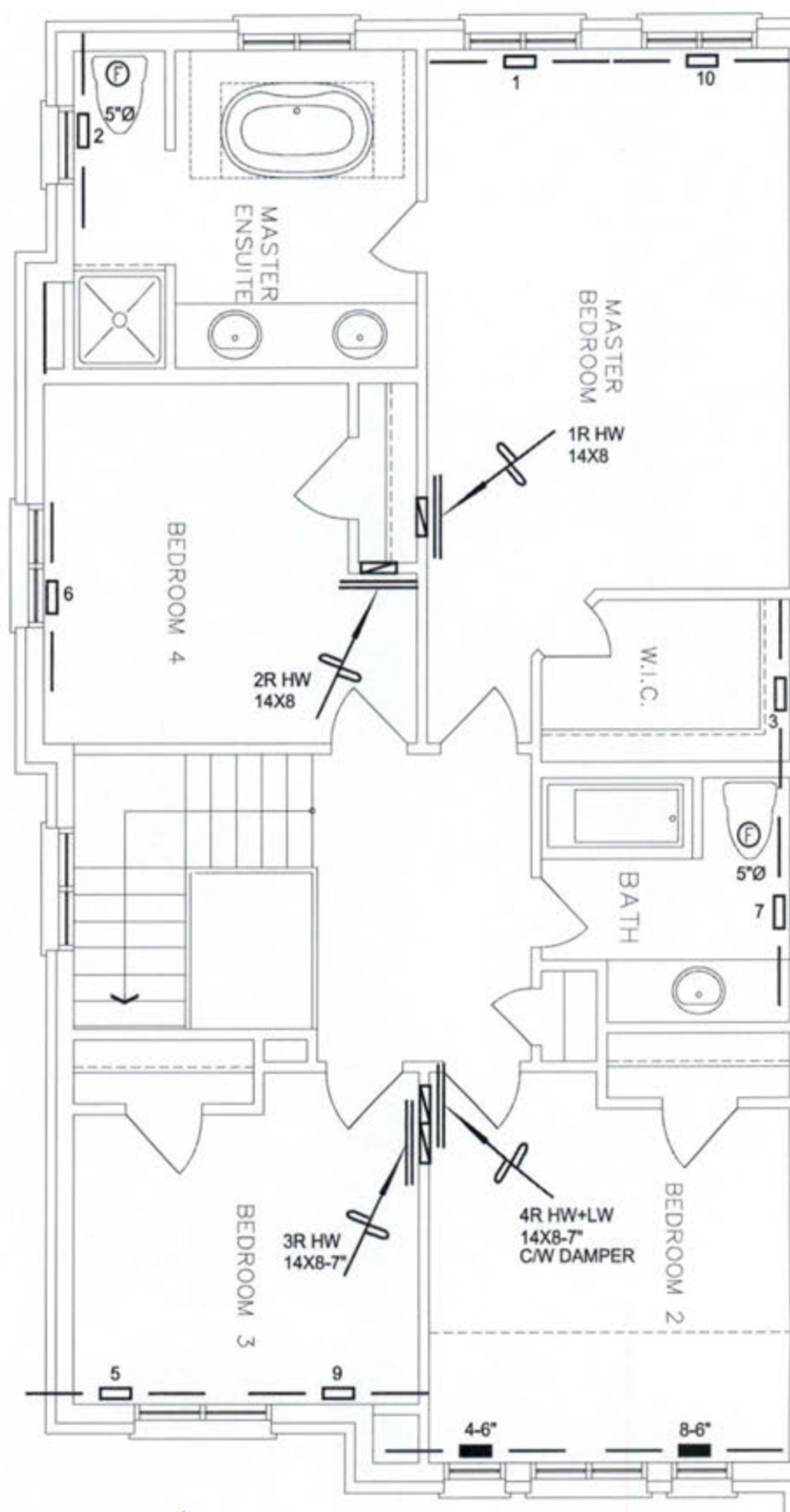
CSA-F280-12
PACKAGE A1

I MICHAEL OROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.3 OF THE BUILDING CODE.
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

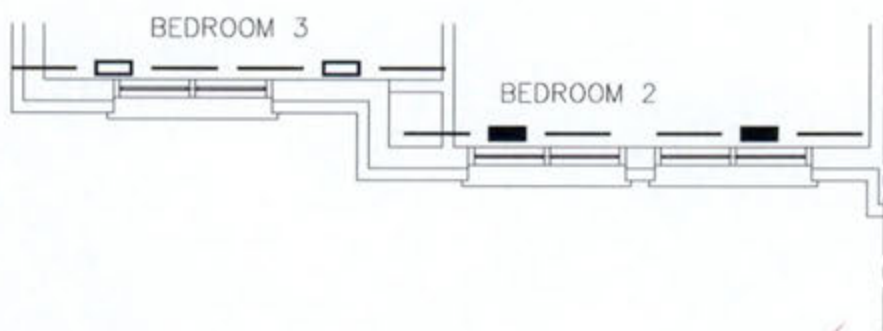
HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

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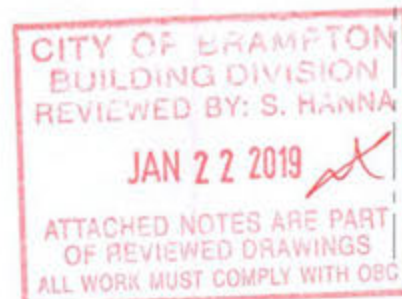
Client GREENPARK HOMES		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdsgns.ca Web: www.hvacdsgns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.	Sheet Title FIRST FLOOR HEATING LAYOUT	
Project Name MINNISALE HOMES CORP BRAMPTON, ONTARIO LOT 11L	HEMLOCK 5	2061 sqft	Date AUG/2018 Scale 3/16" = 1'-0" BCIN# 19669 LO# 79575	



ELEV 1



ELEV 2



CSA-F280-12
PACKAGE A1

I MICHAEL O'Rourke HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THIS DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

HVAC LEGEND								3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS	

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Client GREENPARK HOMES		HVACDESIGNS LTD. 375 Finley Ave, Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdsgns.ca Web: www.hvacdsgns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.	Sheet Title SECOND FLOOR HEATING LAYOUT	
Project Name MINNISALE HOMES CORP BRAMPTON, ONTARIO <i>LOT 114</i>	HEMLOCK 5 2061 sqft		Date AUG/2018	Scale 3/16" = 1'-0"
		BCIN# 19669		LO# 79575